

What is claimed is:

1. A steering column apparatus, comprising:

a wheel shaft for transmitting the rotation from a steering wheel to a steering mechanism of a car body;

a telescopic mechanism for adjusting the position of said steering wheel in the front-rear direction of said car body;

a tilting mechanism for adjusting the tilting angle of said steering wheel;

a clamping mechanisms for clamping said telescopic mechanism and said tilting mechanism respectively;

a single operation lever with an end apart from said steering wheel for a driver to operate said clamping mechanisms; and

an unclamp keeping mechanism which keeps at least one of said clamping mechanisms in unclamping state for steering wheel adjustment after the first operation is applied to said lever until the second operation is applied thereto.

2. A steering column apparatus, comprising:

a wheel shaft for transmitting the rotation from a steering wheel to a steering mechanism of a car body;

a telescopic mechanism for adjusting the position of said steering wheel in the front-rear direction of said car body;

a tilting mechanism for adjusting the tilting angle of said steering wheel;

clamping mechanisms for clamping said telescopic mechanism and said tilting mechanism;

an operation lever with an end apart from said steering wheel for a driver to operate said clamping mechanisms; and

an unclamp keeping mechanism which keeps said clamping mechanism of said telescopic mechanism in unclamping state for steering wheel adjustment after the first operation is applied to said lever until the second operation is applied thereto.

3. A steering column apparatus, comprising:

a wheel shaft for transmitting the rotation from a steering wheel to a steering mechanism of a car body;

a telescopic mechanism for adjusting the position of said steering wheel in the front-rear direction of said car body;

a tilting mechanism for adjusting the tilting angle of said steering wheel;

clamping mechanisms for clamping said telescopic mechanism and said tilting mechanism;

an operation lever with an end apart from said steering wheel for a driver to operate said clamping mechanisms; and

an unclamp keeping mechanism which keeps said clamping mechanism of said tilting mechanism in unclamping state for

steering wheel adjustment after the first operation is applied to said lever until the second operation is applied thereto.

4. A steering column apparatus according to claim 1:  
wherein said tilting mechanism and said telescopic mechanism are unclamped by operations in different directions of said lever.

5. A steering column apparatus according to claims 1:  
wherein both of said tilting mechanism and said telescopic mechanism are unclamped at the same time when said operation lever is operated.

6. A steering column apparatus, comprising:  
a first column member having a mounting part for mounting itself to a car body;

a second column member supported by said first column member unrotatably and movably along the longitudinal direction;

a column head provided at one end of said second column member;

a tilt head tiltably supported by said column head;

a wheel shaft rotatably supported by said tilt head for fixing a steering wheel at its end;

a column clamp for clamping said second column member to said first column member;

a clamp lever having a first rocking axis on said tilt head;

a tilt head clamp for clamping said tilt head to said column head correlatively to the rocking of said clamp lever;

a single operation lever supported by said clamp lever rockably around a second rocking axis and having an end apart from said steering wheel; and

an unclamp keeping mechanism which keeps said clamping mechanisms in unclamping state for steering wheel adjustment after the first operation is applied to said operation lever until the second operation is applied thereto;

wherein said tilt head is unclamped by rocking of said clamp lever around the first rocking axis on said tilt head caused by operation of said operation lever in one direction and said second column member is unclamped by rocking of said operation lever around the second rocking axis on said clamp lever in the opposite direction.

7. A steering column apparatus according to claim 6;

wherein said unclamp keeping mechanism includes:

a pusher plate with which said operation lever provides;

a guide fixed to said column head;

a pusher, one end of which is put in contact with said pusher plate, being slidable in parallel to tilting axis of said tilt head under the guidance of said guide; and

a shifter being slidable in parallel to said tilting axis when coming in contact with the other end of said pusher under the guidance of said guide;

whereby said opposite directional rocking motion of said operation lever is converted to rocking motion of said pusher plate, to liner motion of said pusher, to liner motion of said shifter for clamping/unclamping of said second column and to rotation of the same guided by inclined plate of said guide for keeping the clamping/unclamping state.

8. A steering column apparatus according to claim 7,

wherein said unclamp keeping mechanism further includes:

a rod with ends, one end of which being in contact with said shifter and the other engaging with said column clamp, supported by said column head slidably and co-axially to said shifter; and

a first spring biasing said rod to said shifter for clamping said second column and keeping in contact with said shifter.

9. A steering column apparatus according to claim 8,

wherein said tilt head is provided with a second spring

biasing said clamp lever for clamping.

10. A steering column apparatus according to claim 9, wherein said unclamp keeping mechanism is released from unclamping state of by second operation of said operation lever.

11. A steering column apparatus, comprising:

a first column member having a mounting part for mounting itself to a car body;

a second column member supported by said first column member unrotatably and movably along the longitudinal direction;

a column head provided at one end of said second column member;

a tilt head tiltably supported by said column head;

a wheel shaft rotatably supported by said tilt head for fixing a steering wheel at its end;

a column clamp for clamping said second column member to said first column member;

a tilt head clamp for clamping said tilt head to said column head;

a single operation lever with an end apart from said steering wheel supported rockably by said tilt head for operating both of said column clamp and said tilt head clamp; and

an unclamp keeping mechanism which keeps said clamping mechanisms for both of said second column and said tilt head in unclamping state for steering wheel adjustment after the first operation is applied to said operation lever until the second operation is applied thereto.

12. A steering column apparatus according to claim 11, wherein said clamp keeping mechanism includes a rocking arm and a rocking cam;

wherein said rocking arm is provided at said operation lever and capable of coming in contact with one end of said rocking cam;

wherein said rocking cam is supported at said tilt head rockably; and

wherein rocking of said operation lever, when said lever is rocked in one direction, is converted to rocking of said rocking arm and rocking of said rocking cam in order and, when both of said column clamp and said tilt head clamp are unclamped, said rocking arm is engaged with said rocking cam, thereby keeping both of said column clamp and said tilt head clamp in that state.

13. A steering column apparatus according to claim 12, wherein said unclamp keeping mechanism further includes a first spring; and

wherein said first spring biases said rocking cam so as to keep it in contact with said rocking arm.

14. A steering column apparatus according to claim 13; wherein said tilt head is provided with a second spring for biasing said operation lever for tilt head clamping.

15. A steering column apparatus according to claim 14, wherein said unclamp keeping mechanism are released from unclamping state by operation of said operation lever in one direction.

16. A steering column apparatus, comprising:  
a wheel shaft for transmitting the rotation from a steering wheel to a steering mechanism of a car body;  
a adjusting mechanism for adjusting the position of said steering wheel;  
a clamp mechanism for clamping said adjusting mechanism;  
an operation lever with an end apart from said steering wheel for operating said clamp mechanism; and  
an unclamp keeping mechanism which keeps said clamping mechanism in unclamping state for steering wheel adjustment after the first operation is applied to said lever until the second operation is applied thereto.